APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,829	12/28/2006	Bin Xu	56815.0600	6774

30734   7590   08/19/2009

BAKER & HOSTETLER LLP
WASHINGTON SQUARE, SUITE 1100
1050 CONNECTICUT AVE. N.W.
WASHINGTON, DC 20036-5304

EXAMINER
CHOO, MUNSOON

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
08/19/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@bakerlaw.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _02 June 2009_.
2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-11_ is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) _1,2,10 and 11_ is/are rejected.
7) ☒ Claim(s) _3-9_ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on _02 June 2009_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All   b) ☐ Some *   c) ☐ None of:
   1. ☒ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Note: The objections to the drawings in the previous office action have been withdrawn. However, the dependent claims 3-9 remained objected because they have not been placed into the independent claim.

Allowable Subject Matter

1.   Claim 3-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

2.   Applicant's arguments, with regards to claims 1 and 10 filed June 2, 2009 have been fully considered but they are not persuasive.

3.   **On page 8 of the Applicant's Response, applicants argue** Aapa, Araya and Dahlback do not disclose in claims 1 and 10 that:

* Judging whether there is a maximum point exceeding the noise threshold in the multi-path profile

* The candidate first path is obtained after the maximum point is carried out side-lobe suppression

* Judging ... if yes ... otherwise, deciding that no first path exists

4.   **The Examiner respectfully disagrees with Applicant's arguments.**

Judging whether there is a maximum point exceeding the noise threshold in the multi-path profile

(Araya, Fig 20: Ref F1, F2 and F3 are selected (determined or judged) maximum points)

The candidate first path is obtained (Araya, Fig 20, ref F1-F3) after the maximum point is carried out side-lobe suppression (Araya, Fig 20: Side lobes of F1-F3 are suppressed under the threshold G1)

Judging … if yes … otherwise, deciding that no first path exists

(Araya, Fig 19 ref SE3, Fig 20: If there is no maximum point above the threshold, then there is no first path)

5. **On page 9 of the Applicant's Response, applicants argue** Araya and Ohsuge do not disclose in claims <u>1 and 10</u> that:

- The entire process of first-path detection exits if there is no maximum point exceeding the noise threshold in the multi-path profile,
- Exiting the entire process of first-path detection
- Judging according to the location of the candidate first path whether the first path is ambiguous
- Carrying out correction of first-path ambiguity
- Outputting the location of candidate first path as the location of final first path

6. **The Examiner respectfully disagrees with Applicant's arguments.**

The entire process of first-path detection exits if there is no maximum point exceeding

the noise threshold in the multi-path profile (Araya, Fig 19-20: When ref SE3 returns

with "No", then there is no first path above the threshold and the process ends),

Exiting the entire process of first-path detection

(Araya, Fig 19 ref SE3: The result of "No" ends the entire process)

Judging according to the location of the candidate first path whether the first path is

ambiguous

(Araya, C1 L5-10: Misidentification (ambiguous) of path; Fig 20: Ref F4-F6 are identified

as ambiguous)

Carrying out correction of first-path ambiguity

(Araya, C1 L5-10, Fig 20: Ref F4-F6 will be masked (eliminated) to improve (correct) the

quality (misidentification from F4-F6) of ref F1-F3)

Outputting the location of candidate first path as the location of final first path

(Araya, Abstract: CDMA (outputting the first path without performing correction is

inherent in CDMA); Aapa to clarify CDMA P [2]-[3]: first path)

7. <u>**Therefore, in view of the above reasons, Examiner maintains rejections.**</u>

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim <u>**1 and 10 are**</u> rejected under 35 U.S.C. 102(**e**) as anticipated by <u>Araya et</u>

<u>al. (US 7,133,436 hereinafter "Araya")</u>.

Re claim 1, Araya discloses a method of precise first-path detection in CDMA (title)

mobile communications systems, the method comprising the steps of:

a. calculating the noise threshold for the first-path detection according to the multi-path

profile; (Fig 20 ref G1 and G2 are threshold)

b. judging whether there is a maximum point exceeding the noise threshold in the multi-

path profile (Fig 20: Ref F1, F2 and F3 are selected (determined or judged)),

if yes, carrying out side-lobe suppression at the maximum point which exceeds the

noise threshold (Fig 20: Ref F1, F2 and F3 (are possible (candidate) first path) are not

masked, but their side lopes that fall below threshold G1 will be masked (suppressed))

and obtaining a candidate first path; (Fig 20: Candidate first paths such as F1-F3)

otherwise, deciding that no first path exists, and exiting the entire process of first-path

detection; (Fig 2 ref SA4: "No" results in ending the process; Fig 19 ref SE3: "No")

c. judging according to the location of the candidate first path whether the first path is

ambiguous (C1 L 5-10: Misidentification (ambiguous) of path; Fig 20: Ref F4, F5 and F6

(or F4-F6) are identified as ambiguous),

if yes, carrying out correction of first-path ambiguity (Fig 20: Ref F4-F6 will be masked

(eliminated) to improve (correct) the quality (misidentification from F4-F6) of ref F1-F3),

and outputting the corrected location of final first path; (Fig 20: F1-F3 will be rake-

combined to become the final first path)

otherwise, outputting the location of candidate first path as the location of final first path.

(Abstract: CDMA (outputting the first path without performing correction is inherent in

CDMA); Aapa to clarify CDMA P [2]-[3]: first path)

Re claim 10, Araya discloses an apparatus of precise first-path detection in CDMA

mobile communications systems (title),

the apparatus comprising at least a module for noise threshold calculation (Fig 20 ref

G1 and G2),

a module for side-lobe suppression (Fig 20),

and a module for first-path ambiguity detection (C1 L5-10) and correction (Fig 20 ref F1-

F6), wherein:

the module for noise threshold calculation is for use in receiving the multi-path profile

(Fig 2 ref SA2) from the matched filtering module (Abstract, CDMA; Aapa to clarify

CDMA, P [2]),

calculating the noise threshold for the first-path detection according to this multi-path

profile (Fig 2 ref SA2; Fig 20),

and then outputting this noise threshold to the module for side-lobe suppression; (Fig

20: side lopes that fall below threshold G1 will be masked (suppressed))

the module for side-lobe suppression (Fig 20) is for use in judging whether there is a

maximum point exceeding the noise threshold in the multi-path profile (Fig 20 ref F1-

F3),

carrying out side-lobe suppression at the maximum point which exceeds the noise

threshold (Fig 20: side lopes of ref F1-F3 are suppressed) if there is a maximum point

exceeding the noise threshold,

and then outputting a candidate first path to the module (Fig 20, ref F1-F6 are all

possible (candidate) first path) for first-path ambiguity detection (C1 L5-10) and

correction (Fig 20 ref F1-F6); and

the module for first-path ambiguity detection and correction is for use in carrying out

first-path ambiguity detection (C1 L5-10; Fig 20) according to the received location

(Aapa for clarification only, P [3]) of the candidate first path,

if there is first-path ambiguity (C1 L5-10), making first-path ambiguity correction (Fig 20:

Ref F4-F6 are masked to improve ref F1-F3) to obtain the corrected location of final first

path; (Fig 20: Ref F1-F3)

if there is no first-path ambiguity, just outputting the location of candidate first path.

(Aapa for clarification only, P [2]-[3])

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11.   Claim **2 and 11 are** rejected under 35 U.S.C. 103(a) as being unpatentable over Araya as applied to claim 1 and 10 above, and further in view of Jasper et al. (US 5,140,615 hereinafter "Jasper").

Re claim 2, Araya discloses a method according to claim 1, but fail to disclose in step c, if the first path is not ambiguous, before outputting the location of final first path, the method further comprising:

Step d: carrying out conic interpolation computation for the candidate first path and obtaining the location of final first path according to the result of the interpolation computation.

Jasper discloses:

Step d: carrying out conic interpolation computation for the candidate first path and obtaining the location of final first path according to the result of the interpolation computation. **(Jasper, figure 5, column 3 lines 50 to 53)**

        It would be obvious to one of ordinary skill in the art to modify Araya and have conic interpolated channel gain estimates between the pilot sample times as taught by Jasper, thereby will combine the method of max-ratio and a diversity system to counteract the effects of channel fading on a transmitted information signal as discussed by Jasper.

Re claim 11, Araya discloses an apparatus according to claim 10, but fail to disclose

the apparatus further comprising:

a module for conic interpolation, which is for use in receiving the candidate first path

without first-path ambiguity from the module for first-path ambiguity detection and

correction,

calculating the location of final first path according to the conic interpolation formula for

first-path calibration, and outputting the calibrated location of final first path.

Jasper discloses:

a module for conic interpolation, which is for use in receiving the candidate first path

without first-path ambiguity from the module for first-path ambiguity detection and

correction,

calculating the location of final first path according to the conic interpolation formula for

first-path calibration, and outputting the calibrated location of final first path.

(Jasper, figure 5, column 3 lines 50 to 53)

It would be obvious to one of ordinary skill in the art to modify Araya and have

conic interpolated channel gain estimates between the pilot sample times as taught by

Jasper, thereby will combine the method of max-ratio and a diversity system to

counteract the effects of channel fading on a transmitted information signal as

discussed by Jasper.

Conclusion

1.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to MUNSOON CHOO whose telephone number is
(571)270-7140, fax number is (571)-270-8140 and email is munsoon.choo@uspto.gov.
The examiner can normally be reached on Monday through Friday 7:30am to 5pm.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Nick Corsaro can be reached on (571)272-7876. The fax phone number for
the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Munsoon Choo/
Examiner, Art Unit 2617

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617